2007

Nebraska Summary: S678 Case-IH Maxxum 120 Pro

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SUMMARY OF OECD TEST 2482–NEBRASKA SUMMARY 678
CASE IH MAXXUM 120 PRO DIESEL
16 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1038 rpm)					
101.9 *(76.0)*	2200	6.47 *(24.49)*	0.446 *(0.271)*	15.74 *(3.10)*	
Standard Power Take-off Speed (1000 rpm)					
107.0 *(79.8)*	2119	6.60 *(24.99)*	0.433 *(0.263)*	16.20 *(3.19)*	
Maximum Power - (1 hour)					
117.9 *(87.9)*	1901	6.77 *(25.61)*	0.403 *(0.245)*	17.41 *(3.43)*	
VARYING POWER AND FUEL CONSUMPTION					
101.9 *(76.0)*	2200	6.47 *(24.49)*	0.446 *(0.271)*	15.74 *(3.10)*	Air temperature
88.8 *(66.2)*	2257	6.02 *(22.80)*	0.475 *(0.289)*	14.75 *(2.91)*	64°F *(18°C)*
67.5 *(50.3)*	2280	5.02 *(18.99)*	0.521 *(0.317)*	13.45 *(2.65)*	Relative humidity
45.6 *(34.0)*	2303	3.95 *(14.95)*	0.606 *(0.369)*	11.55 *(2.28)*	41%
23.1 *(17.2)*	2327	2.84 *(10.74)*	0.860 *(0.523)*	8.15 *(1.61)*	Barometer
-- --	2354	1.97 *(7.45)*	-- --	-- --	29.3" Hg *(99.2 kPa)*

Maximum Torque - 388.5 lb.-ft. *(526.7 Nm)* at 1401 rpm
Maximum Torque Rise - 59.7%
Torque rise at 1800 engine rpm - 39%

DRAWBAR PERFORMANCE
(Unballasted - Front Drive Engaged)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—9th (8B) Gear									
81.0 *(60.4)*	5035 *(22.39)*	6.03 *(9.71)*	2195	1.8	0.561 *(0.341)*	12.49 *(2.46)*	187 *(86)*	77 *(25)*	28.9 *(97.9)*
75% of Pull at Maximum Power—9th (8B) Gear									
62.9 *(46.9)*	3745 *(16.66)*	6.30 *(10.14)*	2261	1.2	0.670 *(0.408)*	10.46 *(2.06)*	187 *(86)*	77 *(25)*	28.9 *(97.9)*
50% of Pull at Maximum Power—9th (8B) Gear									
43.2 *(32.2)*	2545 *(11.31)*	6.37 *(10.25)*	2295	0.7	0.787 *(0.479)*	8.90 *(1.75)*	187 *(86)*	73 *(23)*	28.9 *(97.9)*
75% of Pull at Reduced Engine Speed—10th (10C) Gear									
62.9 *(46.9)*	3745 *(16.65)*	6.30 *(10.14)*	2028	1.2	0.578 *(0.352)*	12.12 *(2.39)*	185 *(85)*	72 *(22)*	28.9 *(97.9)*
50% of Pull at Reduced Engine Speed—10th (10C) Gear									
43.0 *(32.1)*	2535 *(11.27)*	6.37 *(10.25)*	2045	0.8	0.704 *(0.428)*	9.96 *(1.96)*	185 *(85)*	73 *(23)*	28.9 *(97.9)*

Location of tests: Istituto per le Macchine Agricole e Movimento Terra 73, Strada delle Cacce 10135 Torino Italy

Dates of tests: December 2007 to June, 2008.

Manufacturer: CNH Europe Holding S.A. 13, Rue Aldringen L-1118 Luxembourg

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.842 **Fuel weight** 7.01 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W40 **API service classification** CH-4 **Transmission and hydraulic lubricant** Akcela Nexplore fluid **Front axle lubricant** Akcela Nexplore fluid

ENGINE: Make CNH Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** 333045 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.094" x 5.197" *(104.0 mm x 132.0 mm)* **Compression ratio** 16.5 to 1 **Displacement** 274 cu in *(4485 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** Z6BE01003 **Tread width** rear 56.3" *(1430 mm)* to 83.9" *(2130 mm)* front 52.2" *(1325 mm)* to 90.0" *(2285 mm)* **Wheelbase** 95.3" (*2421 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (8) range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 1.41 *(2.27)* second 1.73 *(2.78)* third 2.10 *(3.38)* fourth 2.58 *(4.15)* fifth 3.31 *(5.32)* sixth 4.06 (*6.53)* seventh 4.94 *(7.95)* eighth 5.51 *(8.86)* ninth 6.06 *(9.75)* tenth 6.75 *(10.87)* eleventh 8.23 *(13.24)* twelfth 10.09 *(16.24)* thirteenth 12.94 *(20.82)* fourteenth 15.87 *(25.54)* fifteenth 19.32 *(31.09)* sixteenth 23.70 *(38.14)* reverse 1.39 *(2.24)*, 1.71 *(2.75)*, 2.08 *(3.35)*, 2.55 *(4.10)*, 3.27 *(5.26)*, 4.01 *(6.45)*, 4.88 *(7.86)*, 5.44 *(8.76)*, 5.99 *(9.64)*, 6.67 *(10.74)*, 8.13 *(13.08)*, 9.97 *(16.05)*, 12.78 *(20.57)*, 15.68 *(25.24)*, 19.10 *(30.73)*, 23.43 *(37.70)* **Clutch** wet disc hydraulically actuated by foot pedal **Brakes** wet disc hydraulically actuated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1970 engine rpm or 1000 rpm at 2120 engine rpm **Unladen tractor mass** 12465 lb *(5655 kg)*

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Temp.°F*(°C)* Air dry bulb	Barom. inch Hg *(kPa)*
				1st(1A) Gear					
44.3 *(33.0)*	12525 *(55.71)*	1.33 *(2.13)*	2298	12.0	0.727 *(0.442)*	9.64 *(1.90)*	187 *(86)*	77 *(25)*	28.9 *(97.9)*
				2nd(2A) Gear					
54.7 *(40.8)*	12425 *(55.27)*	1.65 *(2.66)*	2286	9.6	0.648 *(0.394)*	10.81 *(2.13)*	187 *(86)*	79 *(26)*	28.9 *(97.9)*
				3rd(3A) Gear					
65.4 *(48.8)*	12115 *(53.90)*	2.03 *(3.26)*	2271	8.5	0.608 *(0.370)*	11.52 *(2.27)*	187 *(86)*	79 *(26)*	28.9 *(97.9)*
				4th(4A) Gear					
78.7 *(58.7)*	12095 *(53.79)*	2.44 *(3.93)*	2230	8.2	0.578 *(0.351)*	12.13 *(2.39)*	187 *(86)*	77 *(25)*	28.9 *(97.9)*
				5th(5B) Gear					
91.6 *(68.3)*	12280 *(54.63)*	2.80 *(4.50)*	1992	8.7	0.516 *(0.314)*	13.59 *(2.68)*	185 *(85)*	77 *(25)*	28.9 *(97.9)*
				6th(6B) Gear					
99.1 *(73.9)*	11015 *(49.01)*	3.37 *(5.43)*	1901	5.5	0.479 *(0.291)*	14.63 *(2.88)*	185 *(85)*	77 *(25)*	28.9 *(97.9)*
				7th(7B) Gear					
96.7 *(72.1)*	8560 *(38.08)*	4.24 *(6.82)*	1900	3.4	0.488 *(0.297)*	14.37 *(2.83)*	185 *(85)*	81 *(27)*	28.9 *(97.9)*
				8th(9C) Gear					
99.5 *(74.2)*	7835 *(34.85)*	4.76 *(7.67)*	1897	2.8	0.474 *(0.288)*	14.78 *(2.91)*	185 *(85)*	77 *(25)*	28.9 *(97.9)*
				9th(8B) Gear					
98.0 *(73.1)*	6940 *(30.86)*	5.30 *(8.53)*	1911	2.4	0.485 *(0.295)*	14.47 *(2.85)*	185 *(85)*	77 *(25)*	28.9 *(97.9)*
				10th(10C) Gear					
99.4 *(74.1)*	6245 *(27.78)*	5.97 *(9.60)*	1921	2.1	0.476 *(0.290)*	14.72 *(2.90)*	185 *(85)*	77 *(25)*	28.9 *(97.9)*
				11th(11C) Gear					
96.2 *(71.7)*	4985 *(22.19)*	7.23 *(11.64)*	1898	1.4	0.493 *(0.300)*	14.21 *(2.80)*	185 *(85)*	73 *(23)*	28.9 *(97.9)*
				12th(12C) Gear					
94.5 *(70.5)*	3955 *(17.59)*	8.96 *(14.42)*	1908	0.9	0.500 *(0.304)*	14.01 *(2.76)*	187 *(86)*	75 *(24)*	28.9 *(97.9)*

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Disengaged dB(A)	Front Wheel Drive Engaged dB(A)
At no load in 7th (7B) gear	69.7	70.9
Bystander	--	--

TIRES AND WEIGHT	Tested Without Ballast
Rear tires - No.,size, ply & psi*(kPa)*	Two 600/65R38; **;12 *(80)*
Front tires - No.,size, ply & psi*(kPa)*	Two 480/65R28; **;12 *(80)*
Height of Drawbar	17.3 in *(440 mm)*
Static Weight with operator- Rear	7760 lb *(3520 kg)*
- Front	4870 lb *(2210 kg)*
- Total	12630 lb *(5730 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's three point lift claim of 9620 lbs *(4364 kg)* nor cab sound level claim of 70.0 dB(A). The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2482,** Nebraska Summary 678, January 8, 2010.

Roger M. Hoy
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

This vehicle is equipped with an electronically controlled engine Power management system that monitors and boosts engine power output in certain circumstances. This is achieved by electronically changing the characteristics of the engine power-speed curve. The engine Power management function ("boosted" power level) becomes active in the higher transmission gears for road transport applications. The system is also activated when power transfer through the PTO exceeds a preset level (and forward speed exceeds 0.5 km/h), for mobile PTO driven implement applications. An overide system is provided to enable PTO operations at the "boosted" power level while the vehicle is stationary for test purposes. The results of this PTO output test are presented below.

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1037 rpm)					
121.9 *(90.9)*	2197	7.43 *(28.13)*	0.427 *(0.260)*	16.40 *(3.23)*	
Standard Power Take-off Speed (1001 rpm)					
123.2 *(91.9)*	2121	7.45 *(28.20)*	0.424 *(0.258)*	16.53 *(3.26)*	
Maximum Power - (1 hour)					
128.3 *(95.7)*	1901	7.30 *(27.64)*	0.399 *(0.243)*	17.57 *(3.46)*	
VARYING POWER AND FUEL CONSUMPTION					
121.9 *(90.9)*	2197	7.43 *(28.13)*	0.427 *(0.260)*	16.40 *(3.23)*	Air temperature
105.4 *(78.6)*	2238	6.71 *(25.39)*	0.446 *(0.271)*	15.72 *(3.10)*	64°F *(18°C)*
80.1 *(59.7)*	2267	5.60 *(21.19)*	0.490 *(0.298)*	14.31 *(2.82)*	Relative humidity
54.3 *(40.5)*	2295	4.39 *(16.61)*	0.566 *(0.345)*	12.38 *(2.44)*	52%
27.4 *(20.4)*	2322	3.04 *(11.52)*	0.779 *(0.474)*	8.99 *(1.77)*	Barometer
-- --	2348	1.98 *(7.49)*	-- --	-- --	29.4" Hg *(99.4 kPa)*

Maximum Torque - 390.5 lb.-ft. *(529.5 Nm)* at 1399 rpm
Maximum Torque Rise - 34.1%
Torque rise at 1800 engine rpm - 27%

HYDRAULIC PERFORMANCE

CATEGORY: II	
Quick Attach: None	
OECD Static test	
Maximum force exerted through whole range:	6925 lbs *(30.8 kN)*
i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2990 psi *(206 bar)*
ii) Pump delivery rate at minimum pressure:	28.5 GPM *(107.9 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	26.5 GPM *(100.2 l/min)*
Delivery pressure:	2465 psi *(170 bar)*
Power:	38.1 HP *(28.4 kW)*

THREE POINT HITCH PERFORMANCE

Observed Maximum Pressure psi. *(bar)*	3000 *(207)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	150 *(66)*
Location:	hydraulic sump
Category:	II
Quick attach:	None

SAE Static Test—System pressure 2700 psi *(186 Bar)*

Hitch point distance to ground level in. *(mm)*	7.9 *(200)*	17.9 *(455)*	23.0 *(585)*	29.5 *(750)*	37.6 *(955)*
Lift force on frame lb	12115	10815	10655	10365	9420
" " " " " " *(kN)*	*(53.9)*	*(48.1)*	*(47.4)*	*(46.1)*	*(41.9)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	*mm*	inch	*mm*
A	28.0	*712*	28.7	*729*
B	12.2	*310*	12.2	*310*
C	15.6	*395*	15.6	*395*
D	14.6	*370*	14.6	*370*
E	7.9	*200*	9.8	*250*
F	9.3	*235*	9.3	*235*
G	32.3	*820*	32.3	*820*
H	1.2	*30*	1.2	*30*
I	16.9	*430*	15.6	*395*
J	23.0	*585*	23.0	*585*
K	19.9	*505*	23.0	*585*
L	44.0	*1118*	44.0	*1118*
M	22.2	*563*	22.2	*563*
N	37.4	*950*	37.4	*950*
O	7.9	*200*	7.9	*200*
P	47.0	*1195*	42.0	*1068*
Q	34.8	*885*	32.5	*825*
R	32.6	*828*	34.6	*878*